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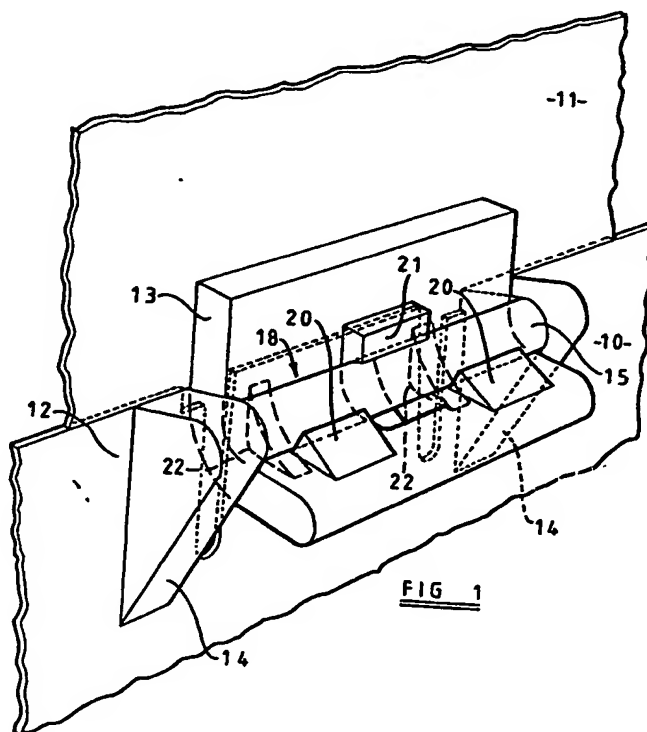
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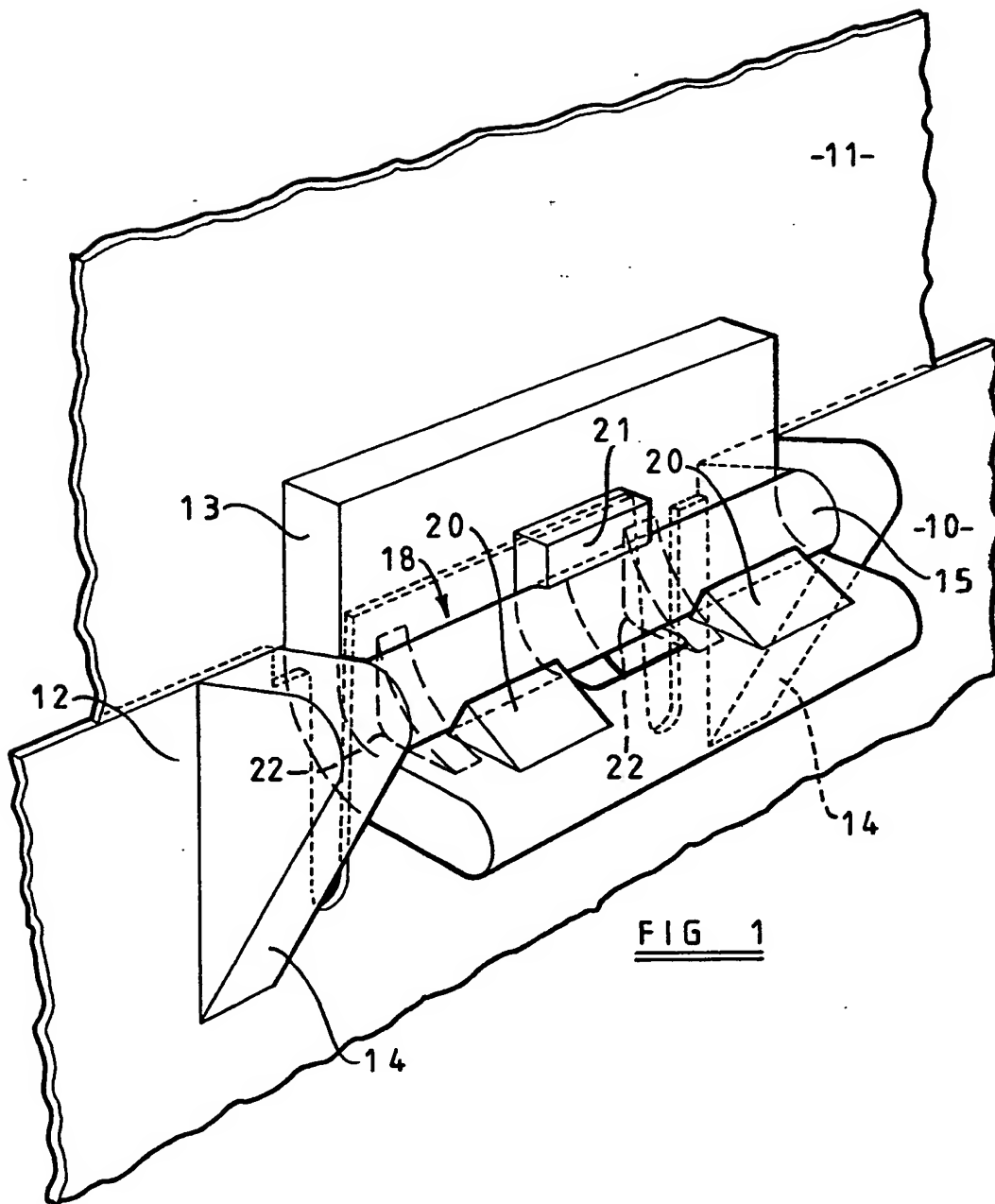
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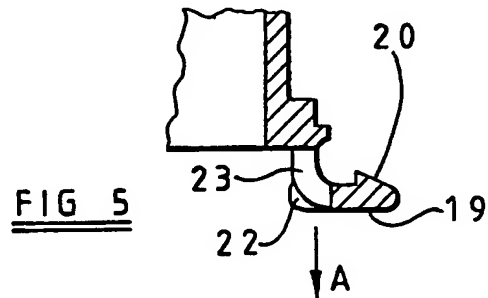
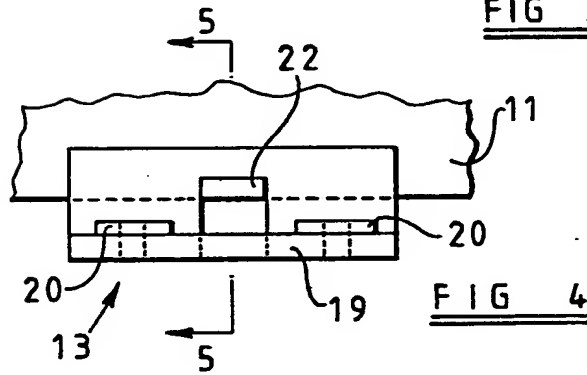
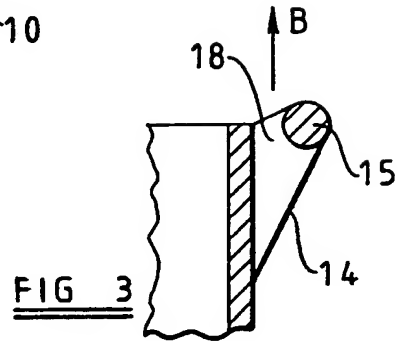
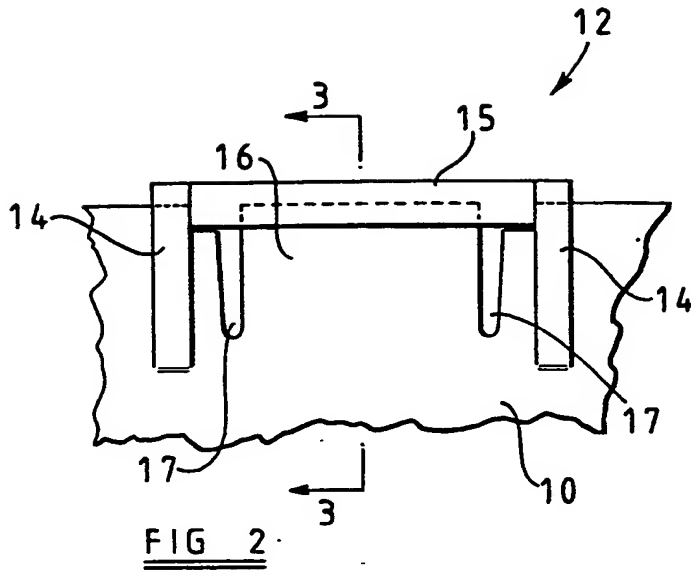
(54) Hinge assembly

(57) A hinge assembly for a plastic box and lid which provides the lid with a partly open "parked" position comprises a first part (12) which may be moulded on the box including a pair of lugs (14) and a pin-like bridge member (15), a flexible web member between the lugs, e.g. defined by slots, and a second hinge part (13) which may be moulded on the lid and comprises a tongue having barbs (20) having snap engagement below the bridge (15) pivotally to connect the lid to the box and a cam projection (22) abutting with the flexible web to provide a partly open "parked" condition.



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HINGE ASSEMBLY

This invention relates to a hinge assembly. The hinge was designed primarily for attaching a lid to a plastics box.

It may be desirable for the lid of a box to have a partly open "parked" position so that the lid need not be manually held open. It may also be desirable in some circumstances for the lid to be removable from the box.

It is an object of the present invention to provide a hinge assembly meeting both these desiderata.

According to the invention there is provided a hinge assembly comprising a first and a second hinge part;

the first hinge part comprising a pair of spaced parallel lugs, a bridge member connecting said lugs, and a flexible web member between said lugs, parallel to the bridge member and spaced therefrom by a gap;

the second hinge part comprising a tongue adapted to be inserted in said gap, the tongue having terminal barbed means adapted to snap engage in said gap to mount the second hinge part for pivotal movement about the bridge member and cam means adapted to bear on said flexible member to resist movement of the tongue once a predetermined pivotal movement has taken place;

the resilience of the flexible web member permitting passage of said cam means beyond the limit of said predetermined pivotal movement on the application of manual force.

The hinge assembly may be made entirely in synthetic

plastics material and may be moulded integrally with a box and box lid.

The invention also provides a method of manufacturing a box having a hinge assembly in which each of the first and second hinge parts are moulded in a two-part die set without retractable mould parts. Thus, the hinge can be moulded integrally and ejected from the mould on the draw of the tool.

A hinge assembly embodying the invention will now be described in more detail by way of example only with reference to the accompanying drawings, in which:-

Figure 1 is a perspective view of a hinge;

Figure 2 is an elevational view of a first part of the hinge;

Figure 3 is a section on the line 3-3 of Figure 2;

Figure 4 is an elevational view of a second part of the hinge;

Figure 5 is a section on the line 5-5 of Figure 4.

Referring to the drawings a box 10 has a lid 11 partly shown in the drawings. The box has a first hinge part 12 and the lid has a second hinge part 13.

The first hinge part 12 comprises a pair of lugs 14, between which is disposed a bridge member 15 in the form of a cylindrical pin. The wall of the box 10 has a resilient flexible web member 16 disposed between the lugs 14 and parallel to the bridge member 15. The flexible web member may simply comprise a portion of the box of the same

thickness as the remainder but having a pair of slots 17 to permit the plastics material between the slots to flex slightly.

A gap 18 is defined between the flexible web member 16 and the bridge member 15, for the attachment of the second hinge part 13.

The second hinge part 13 comprises a tongue 19 which has terminal barbed means in the form of a pair of barbs 20. These have a resilient snap engagement in the gap 18 so that the second hinge part 13 can be attached manually to the first hinge part 12, to connect the lid 11 to the box 10.

A stop 21 locates against the bridge member 15 to hold the hinge in position and it will be seen that pivotal movement of the lid 11 can then take place about the bridge member 15.

A cam projection 22 is provided at a position inside the box in use. This cam projection 22 comes into abutment with the flexible web member 16 when the lid is at a partly open position, typically between  $40^{\circ}$  and  $50^{\circ}$  elevation. Thus, the user of the box can leave the lid in this partly open "parked" condition without needing to hold the box lid. By extension of the tongue, the "parked" condition could be provided at a greater angle, up to 180 degrees.

When it is desired to close the box, manual pressure causes the cam projection 22 to slightly spring the flexible resilient web member 16 out of its path. The cam projection 22 passes the web member 16 and this permits the box lid to be fully closed. A suitable catch means may be provided on the box, but the co-operation of the projection 22 and the web member 16 will normally hold the lid closed

unless manual force is applied to re-open it.

When it is desired to remove the lid entirely from the box, all that is necessary is to pull the lid upwardly so that the barbs 20 are released from the gap 18, releasing the bridge member.

Each of the first and second hinge parts is formed on the draw of a moulding tool. In order to achieve this, an aperture 23 is provided above the stop 21. A male portion of the moulding tool defines this aperture 23 and the upper side of the stop 21 and can be withdrawn with the remaining portions of the moulding tool in the direction of the arrow A.

Similarly, it will be seen that the first hinge part 12 can be moulded on the draw of the appropriate moulding tool which takes place in the direction of arrow B.

Claims:

1. A hinge assembly comprising a first and a second hinge part;

the first hinge part comprising a pair of spaced parallel lugs, a bridge member connecting said lugs, and a flexible web member between said lugs, parallel to the bridge member and spaced therefrom by a gap;

the second hinge part comprising a tongue adapted to be inserted in said gap, the tongue having terminal barbed means adapted to snap engage in said gap to mount the second hinge part for pivotal movement about the bridge member and cam means adapted to bear on said flexible member to resist movement of the tongue once a predetermined pivotal movement has taken place;

the resilience of the flexible web member permitting passage of said cam means beyond the limit of said predetermined pivotal movement on the application of manual force.

2. A hinge assembly according to claim 1 made entirely in synthetic plastics material.

3. A hinge assembly according to claim 2 wherein the first and second hinge part are moulded integrally with a box and box lid respectively.

4. A method of manufacturing a hinge assembly according to any one of claims 1 to 3 wherein each of the first and second hinge parts is moulded in a two part die set without retractable mould parts.

5. A method of manufacturing a box having a hinge assembly according to claim 3 wherein each of the first and second hinge parts is moulded in a two part die set without



retractable mould parts and is moulded integrally with said box and box lid respectively, the box and first hinge part and the box lid and second hinge part being ejected from the mould on the draw of the tool.

6. A hinge assembly substantially as hereinbefore described with reference to and as illustrated in the accompanying drawings.

7. A box and lid having a hinge assembly substantially as hereinbefore described with reference to and as illustrated in the accompanying drawings.